

CLAIMS

What is Claimed is:

1. A system employing Synchronization Markup Language (SyncML) device management specifications to facilitate firmware updates in an electronic device, the system comprising:

at least one electronic device having a memory, at least a portion of the memory comprising non-volatile memory containing firmware;

a SyncML server communicatively coupled to the electronic device, the server comprising an enhanced SyncML DM server software; and

a SyncML DM client resident in the electronic device, wherein the SyncML DM client is capable of interpreting enhancements to the SyncML DM specifications for updating the firmware.

2. The system according to claim 1 wherein the electronic device comprises:
communication software that supports at least one data transport protocol;
a security module; and

at least one software function that provides access to proprietary parameters in the electronic device.

3. The system according to claim 2 wherein the electronic device further comprises a security device.

4. The system according to claim 2 wherein the electronic device further comprises a security device reader.

5. The system according to claim 2 wherein the SyncML DM client comprises:

message processing software that facilitates processing and executing of SyncML messages, commands, alerts, and notifications;

a SyncML manager;

a download software that facilitates the downloading of at least one firmware update package from the SyncML server; and

an update software that facilitates the updating of firmware using the at least one firmware update package.

6. The system according to claim 5 wherein the message processing software comprises:

a first software that parses SyncML messages to retrieve data;

a second software that assembles SyncML messages; and

a third software that sends the data retrieved from the SyncML messages for execution.

7. The system according to claim 1 wherein the SyncML server comprises a SyncML engine.

8. The system according to claim 7 wherein the SyncML server further comprises an interface to at least one external service provisioning system.

9. The system according to claim 7 wherein the SyncML server further comprises a manager that facilitates notification of the electronic device.

10. The system according to claim 7 wherein the SyncML engine facilitates the creation and communication of SyncML messages and notifications to the electronic device.

11. The system according to claim 7 wherein the SyncML engine facilitates the creation and communication of update packages to the electronic device.

12. The system according to claim 7 wherein the SyncML engine supports parsing and executing at least one enhancement of SyncML requests such as the enhancements to SyncML device management specifications.

13. The system according to claim 7 wherein the SyncML server further comprises a database that provides access to copies of the firmware in the electronic device.

14. The system according to claim 13 wherein the content is firmware update packages.

15. A method for updating firmware in an electronic device in a system employing enhancements to SyncML DM specifications, the system comprising the electronic device, and a SyncML server, the method comprising:

receiving, by a SyncML DM client resident in the electronic device, a SyncML based notification from the SyncML server;
parsing the notification; and
sending the notification for user review and subsequent user input.

16. The method according to claim 15 wherein the notification indicates availability of a firmware update package.

17. The method according to claim 15 wherein the method further comprises:
initiating a firmware update based on an input by the user;
sending the firmware update to a download agent in the electronic device;
communicating an appropriate SyncML message to initiate download of an update package from the SyncML server; and
facilitating and analyzing a response from the SyncML server.

18. The method according to claim 17 further comprising:
verifying validity and authentication of the update package, if an update package is received as part of the response; and
dispatching commands in the response to appropriate modules.

19. The method according to claim 17 wherein the SyncML message is assembled in the electronic device.

20. The method according to claim 18 wherein the commands comprise a command for verification of the received update package.

21. The method according to claim 18 wherein the commands comprise a command for saving the update package in an appropriate management object.

22. The method according to claim 18 wherein the commands comprise a command for retrieving update packages.

23. The method according to claim 18 wherein the commands comprise a command for updating the firmware based on appropriateness, security, and authentication.

24. The method according to claim 18 wherein the commands comprise a command for initiating an update process by the update agent.

25. The method according to claim 24 wherein the commands comprise a command for subsequent notification of the result of the update agent processing.

26. A SyncML DM interpreter in an electronic device, wherein the SyncML DM interpreter supports updates and downloads of software and firmware in the electronic device.